1. A microcavity device comprising: an open end for receiving discharge gas, and a closed end, and wherein said microcavity device is arranged to emit radiation with a wavelength less than 100 nanometers through said closed end.

2. A microcavity device of claim 1, wherein said wavelength is in the range of 10 to 15 nanometers.

3. A microcavity device of claim 1, wherein said open end has a diameter less than or equal to 120 microns.

4. A microcavity device of claim 1, further comprising said discharge gas.

5. A microcavity device of claim 4, wherein the pressure of said discharge gas is greater than or equal to 200 torr.

6. A microcavity device of claim 5, wherein the pressure of said discharge gas is in the range of 200 to 600 torr.

7. A microcavity device of claim 4, wherein said discharge gas includes xenon.

8. A microcavity device of claim 1, further comprising a highly conductive doped crystalline silicon cathode plug, and wherein said cathode plug is located between said open end and said closed end.

9. A microcavity device of claim 1, further comprising a highly conductive doped crystalline polysilicon cathode plug, and wherein said cathode plug is located between said open end and said closed end.

10. A microcavity device of claim 1, wherein the material thickness between said closed end and the exterior of the device is in the range of 0.2 to 0.8 microns.

11. A microcavity device according to claim 1, further comprising a conductive substrate.

12. A microcavity device according to claim 11, wherein said substrate has an aperture.

13. A microcavity device according to claim 12, wherein said aperture has sloped sides.

14. A microcavity device comprising: an open end for receiving discharge gas, a closed end, and a metal layer, and wherein said microcavity device emits radiation through said metal layer.

15. A microcavity device of claim 14, wherein said closed end is formed by said metal layer.

16. A microcavity device of claim 14, wherein said metal layer includes beryllium.

17. A microcavity device of claim 14, wherein said radiation has a wavelength in the range of 11 to 12 nanometers.

18. A microcavity device of claim 14, wherein said open end has a diameter less than or equal to 120 microns.

19. A microcavity device of claim 14, further comprising said discharge gas.

20. A microcavity device of claim 19, wherein the pressure of said discharge gas is greater than or equal to 200 torr.

21. A microcavity device of claim 20, wherein the pressure of said discharge gas is in the range of 200 to 600 torr.

22. A microcavity device of claim 19, wherein said discharge gas includes xenon.

23. A microcavity device according to claim 14, further comprising a conductive substrate.

24. A microcavity device according to claim 23, wherein said substrate has an aperture.

25. A microcavity device according to claim 24, wherein said aperture has sloped sides.

26. A method of operating a microcavity discharge device, said method comprising the steps of:

supplying an electrical current to discharge gas located within said device, said electrical current including a constant direct current and a pulsed current; and

emitting radiation through a closed end of said microcavity discharge device.

27. The method of claim 26, wherein said radiation has a wavelength that is less than 100 nanometers.

28. The method of claim 26, wherein said emitting step includes emitting radiation through a metal.

29. The method of claim 26, further comprising the step of supplying said constant direct current at a voltage of approximately 220 Volts.

30. The method of claim 29, further comprising the step of supplying said constant direct current in the range of approximately 1 to 3 milliamps.

31. The method of claim 29, further comprising the step of supplying said pulsed current in the range of approximately 60 to 100 amps.

32. The method of claim 26, further comprising the step of supplying said pulsed current with a duration of approximately 1×10^{-6} seconds or less.

33. The method of claim 26, further comprising the steps of supplying said pulse current at a rate up to approximately 1000 pulses per second.

34. The method of claim 26, further comprising the steps of spacing said pulse current at approximately 0.001 seconds or greater.

35. An optical system comprising:

a microcavity discharge device, said microcavity comprising: an open end for receiving gas, and a closed end, and wherein said microcavity discharge device emits radiation with a wavelength less than 100 nanometers through said closed end; and

a power supply connected to said microcavity discharge device.

36. An optical system comprising:

a microcavity discharge device comprising: an open end for receiving gas, and a closed end, and wherein said device emits radiation with a wavelength less than 100 nanometers through said closed end; and

a mirror for reflecting said radiation.

37. An optical system according to claim 36, wherein said mirror includes molybdenum silicon.

38. An optical system according to claim 36, wherein said mirror includes molybdenum beryllium.